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[54] **ORGANIC THIN FILM TRANSISTOR HAVING A PHTHALOCYANINE SEMICONDUCTOR LAYER**

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[52] **U.S. Cl.** **257/40**; 257/66; 257/75; 438/99

[58] **Field of Search** 257/40, 66, 75; 438/99

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[57] **ABSTRACT**

Thin film transistors in which the active layer is an ordered film of a pthalocyanine coordination compound with a field-effect mobility greater than 10^{-3} cm^2/Vs and a conductivity in the range of about 10^{-9} S/cm to about 10^{-7} S/cm at 20° C. are disclosed. Examples of suitable pthalocyanines include copper pthalocyanine, zinc pthalocyanine, hydrogen pthalocyanine, and tin pthalocyanine. Thin film devices made of these materials have an on/off ratio of at least about 10^4. It is advantageous if the device is fabricated using a process in which the substrate is heated to a temperature in the range of about 30° C. to about 200° C. when the film is formed thereon.

4 Claims, 1 Drawing Sheet